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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,107	10/20/2003	Fred G. Benkley III	M1059.70000US01	4260
7590 11/03/2004 William R. McClellan Wolf, Greenfield & Sacks, P.C. 600 Atlantic Avenue Boston, MA 02210			EXAMINER CARTER, AARON W	
			ART UNIT 2625	PAPER NUMBER

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,107

Applicant(s)

BENKLEY, FRED G.

Examiner

Aaron W Carter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,785,407 to Tschudi et al. ("Tschudi") in view of USPN 6,643,389 to Raynal et al. ("Raynal").

As to claim 1, Tschudi discloses a rate sensing apparatus comprising:

Two or more object detectors spaced apart along a direction of movement of an object, wherein an end of an object passing over each of said object detectors produces a change in capacitance.

Tschudi does not disclose expressly each of said object detectors including at least one rate drive plate and at least one rate pickup plate and each of said object detectors produces a change in capacitance between respective rate drive plates and rate pickup plates (column 2, line 65 – column 3, line 3, column 3, lines 35-40 and 4, lines 15-20).

However, Raynal discloses a sensing apparatus comprising:

Two or more object detectors spaced apart along a direction of movement of an object (Fig. 2, elements 21), each of said object detectors including at least one drive plate and at least one pickup plate (Fig. 3, elements 35 and 37), wherein an end of an

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object passing over each of said object detectors produces a change in capacitance between respective drive plates and pickup plates (column 5, lines 10-14).

Tschudi & Raynal are combinable because they are from the same field of image processing and more specifically in the same field of fingerprint image sensing through the use of capacitance.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the structure of detecting a change in capacitance between an image drive and pickup plate as disclosed by Raynal with the fingerprint image sensing system disclosed by Tschudi.

The suggestion/motivation for doing so would have been that the use of the sensing element disclosed by Raynal is that the electrical detection devices have the advantage of being less subject to moisture problems (column 1, lines 49-53), as well as the narrow array device is less expensive (column 2, lines 59-62).

Therefore, it would have been obvious to combine Tschudi with Raynal to obtain the invention as specified in claim 1.

As to claim 2, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 1, wherein the rate drive plate and the rate pickup plate of each of said object detectors are disposed generally laterally with respect to the direction of movement of the object (Raynal, Fig. 1, 2 and 3 and column 4, lines 58-67, wherein the sensor array, element 13, comprises multiple cells each containing a first and second capacitor one of which corresponds to the image pickup plate and the other corresponds to the image drive plate).

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As to claim 3, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 1, wherein the rate pickup plates of said sets of rate sensing plates are commonly connected (Raynal, Fig. 2 and 3, wherein each cell contains a pickup plate and each cell is connected).

As to claim 4, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 1, wherein each of said object detectors includes first and second rate pickup plates disposed on opposite sides of the rate drive plate to form a differential rate sensor (Raynal, Fig. 2 and 3, wherein each cell contains a pickup plate and the cells in rows and columns meaning that the pickup plates are disposed on opposites of the drive plates).

As to claim 5, please refer to the rejections made for claim 3 above.

As to claim 6, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 1, wherein the rate drive plates and the rate pickup plates of said object detectors are dimensioned and spaced for detecting the speed of a moving finger (Tschudi, column 2, lines 6-10 and column 4, lines 15-20).

As to claim 7, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 6, wherein the rate drive plates and the rate pickup plates of

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said object detectors are curved to substantially match the curve of a typical finger end (Tschudi, column 3, lines 49-58).

As to claim 8, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 6, wherein said rate drive plates and said rate pickup plates comprise conductive traces on said substrate (Raynal, column 4, lines 40-56 and Fig. 2).

As to claim 9, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 6, further comprising a flexible substrate, wherein said rate drive plates and said rate pickup plates comprise conductive traces on said flexible substrate (Tschudi, column 2, lines 6-10 and column 4, lines 15-20 and Raynal, column 4, lines 40-56 and Fig. 2).

As to claim 10, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 8, wherein substrate comprises a printed circuit board (Raynal, Fig. 2 and column 3, lines 36-37).

As to claim 11, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 1, further comprising:

An excitation circuit for energizing the rate drive plates of said object detectors with drive signals (Raynal, column 4, lines 7-14, wherein power supply and scan control correspond to excitation circuit), and

A detection circuit for detecting the drive signals capacitively coupled from the rate drive plate to the rate pickup plate of each of said object detectors to provide rate signals (Raynal, column 4, lines 22-24, wherein A/D converter and Output logic corresponds to detection circuit).

As to claim 12, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 11, wherein said drive signals comprise signal bursts (Raynal, column 4, lines 7-14 and column 5, lines 14-37).

As to claim 13, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 12, wherein said signal bursts comprises bursts of a clock signal (Raynal, column 4, lines 1-6, wherein the scanning rate corresponds to a clock signal based on finger movement speed, see also column 2, lines 50-58).

As to claim 14, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 12, wherein said detection circuit comprises a synchronous detector (Raynal, column 4, lines 1-6).

As to claim 15, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 11, further comprising a processing circuit for determining a time delay between said rate signals from said object detectors, wherein said time delay between said rate signals is representative of a speed of the object (Tschudi, column 3, lines 20-28 and Raynal, column 4, lines 15-21).

As to claim 16, the combination of Tschudi and Raynal disclose the rate sensing apparatus as defined in claim 1, wherein the rate drive plate and the rate pickup plate of each of said object detectors are substantially coplanar (Raynal, Fig. 2 and 3).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent Application Publication 2002/0067845 to Griffis discloses a method of detecting a fingerprint and speed of the finger.

USPN 6,320,394 to Tartagni discloses a capacitive distance sensor.

USPN 6,289,114 to Mainguet discloses a capacitive fingerprint sensor with adjustments made for the speed of a finger.

USPN 6,317,508 to Kramer et al. discloses a capacitive fingerprint sensor.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W Carter whose telephone number is (703) 306-4060. The examiner can normally be reached on 7am - 3:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600**